

Contagious Equine Metritis

Importance

Contagious equine metritis (CEM) is a highly communicable venereal disease of horses. This disease can spread rapidly from a single carrier. Stallions are asymptomatic and may transmit the infection to the majority of mares they cover. Asymptomatic carrier mares can also infect stallions.

Infected mares develop an acute purulent metritis and fail to conceive, resulting in substantial economic losses. Additional economic costs include the cost of pre-breeding tests in endemic areas, as well as surveillance screening before importation into CEM-free countries. Immunity is weak, and animals may become infected repeatedly.

Etiology

Contagious equine metritis is caused by *Taylorella equigenitalis*, a fastidious microaerophilic gram-negative coccobacillus. Two types of strains exist, one sensitive and the other resistant to streptomycin. A small-colony variant may be particularly difficult to identify: its only distinguishing characteristic in culture is that the colonies are small and transparent.

In 1997 and 1998, an organism resembling *T. equigenitalis* was isolated during routine export testing from donkeys in California and Kentucky. The animals had no clinical signs. Following bacteriologic studies, this organism has been proposed as a new species, *Taylorella asinigenitalis*. *T. asinigenitalis* causes no apparent disease, but is contagious and induces an antibody response. This non-pathogenic organism can be distinguished from *T. equigenitalis* by a polymerase chain reaction (PCR) assay.

Species affected

Horses are the only species infected naturally by this organism. Thoroughbreds seem to be particularly susceptible. Donkeys have been infected under experimental conditions.

Geographic distribution

Taylorella equigenitalis has been reported mainly in the United Kingdom and Europe; however, this organism is difficult to grow in culture, and its geographic distribution is difficult to estimate accurately. Many countries have introduced strict import regulations to prevent its introduction. Contagious equine metritis has been eradicated from the United States.

Transmission

T. equigenitalis is transmitted mainly during mating, but may also be spread by artificial insemination or on mechanical vectors. The transmission rate is extremely high. Stallions are the most common source of the infection. In the stallion, the bacteria can persist for months or years on the surface of the penis (particularly the urethral fossa) and the smegma of the prepuce. Mares can also carry *T. equigenitalis* on the clitoris. Foals born to infected mares may become long-term asymptomatic carriers.

Incubation period

An inflammatory reaction begins 24 hours after colonization by the organism and reaches a peak after 10 days to 2 weeks. Clinically, the infection usually becomes apparent 10 to 14 days after breeding.

Clinical signs

Infected stallions display no clinical signs. Mares develop metritis and temporary infertility. The infection may be subclinical; the only symptom may be a return to estrus after a shortened estrus cycle. More severely affected mares develop a copious mucopurulent vaginal discharge 10 to 14 days after breeding. In an uncomplicated infection, the discharge is usually mucoid, purulent, and gray; mixed bacterial infections may result in a gray to yellow exudate. The discharge often disappears after a few days but the infection may persist for months. Most infected mares do not conceive. Those that do may abort or give birth to a foal that becomes a carrier at maturity. Chronically infected animals are asymptomatic.

Post mortem lesions

The most severe post-mortem lesions are usually found in the uterus. The endometrial folds may be swollen and edematous, and a mucopurulent exudate may be apparent. Edema, hyperemia, and a mucopurulent exudate may be seen on the cervix. Salpingitis and vaginitis also occur. Lesions are most apparent approximately 14 days after infection, then gradually decrease in severity over the next few weeks.

Morbidity and Mortality

Fatal infections have not been seen. Morbidity is high; nearly every mare mated to an infected stallion will become infected. Most mares recover without incident but some can become carriers. Immunity after an infection is not complete, and mares can be infected repeatedly during a short period of time.

Infected animals can be treated with systemic antibiotics and disinfectant washing of the penis or clitoral area. Surgical excision of the clitoral sinuses can eliminate the organism in carrier mares.

Diagnosis

Clinical

Contagious equine metritis should be a consideration in mares that develop an abundant mucopurulent vaginal discharge 10 to 14 days after breeding. The disease may also be suspected in mares that return prematurely to estrus, particularly when several mares have the same symptoms after being mated to the same stallion.

Differential diagnosis

Pseudomonas aeruginosa and some capsule types of *Klebsiella pneumoniae* can cause outbreaks of endometritis. In general, most bacterial infections are not as contagious and produce a scantier discharge than contagious equine metritis.

Laboratory tests

Microscopic examination of Gram-stained smears of the uterine discharge may reveal numerous gram-negative coccobacilli (present individually or arranged end-to-end) and large numbers of inflammatory cells.

Definitive diagnosis is by isolation of the causative organism from swabs of the genital tract. Bacterial isolation should be performed by a laboratory experienced in isolating *T. equigenitalis*. Stallions may also be bred to test mares and the test mares cultured for the causative organism. A recently developed PCR technique may be more sensitive than culture.

Serologic tests cannot reliably detect infections with *T. equigenitalis*. These assays should not be used instead of culture, but may be helpful as adjunct tests. Several antibody tests are available. Complement fixation can detect *T. equigenitalis* in mares from 15 to 45 days after infection, but becomes unreliable thereafter. Other tests include the rapid plate agglutination (RPA), antiglobulin, enzyme-linked immunosorbent assay (ELISA), passive hemagglutination (PHA), and agar-gel diffusion tests. Serologic tests are not useful in stallions, since stallions do not produce detectable antibodies to *T. equigenitalis*.

Samples to collect

Before collecting or sending any samples from animals with a suspected foreign animal disease, the proper authorities should be contacted. Samples should only be sent under secure conditions and to authorized laboratories to prevent the spread of the disease.

T. equigenitalis can be isolated from vaginal discharges. In suspect mares, swabs should be taken from the clitoral fossa, sinuses, and endometrium (if possible, during estrus). In stallions, swabs should be taken from the urethra, urethral fossa, penile sheath, and pre-ejaculatory fluid. No antibiotics should be used for at least 7 days before the sample is taken.

Swabs should be placed in a transport medium with activated charcoal (for example, Amies medium) to absorb bacterial products that may inhibit the growth of *T. equigenitalis*. Samples should be kept cool and transported to the laboratory within 24-48 hours.

Recommended actions if contagious equine metritis is suspected

Notification of authorities

Contagious equine metritis must be reported to state or federal authorities immediately upon diagnosis or suspicion of the disease. Federal: Area Veterinarians in Charge (AVICS) http://www.aphis.usda.gov/vs/area_offices.htm

State vets: <http://www.aphis.usda.gov/vs/sregs/official.html>

Quarantine and Disinfection

Taylorella equigenitalis is susceptible to most common disinfectants, including chlorhexidine, ionic and nonionic detergents, and sodium hypochlorite (30 ml of household bleach in 1 gal of water).

Public health

There is no evidence of human infection with this organism.

For More Information

World Organization for Animal Health (OIE)

<http://www.oie.int>

OIE Manual of Standards

http://www.oie.int/eng/normes/mmanual/a_summry.htm

OIE International Animal Health Code

http://www.oie.int/eng/normes/mcode/A_summry.htm

USAHA Foreign Animal Diseases book

http://www.vet.uga.edu/vpp/gray_book/FAD/

References

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“Contagious Equine Metritis.” In *The Merck Veterinary Manual*, 8th ed. Edited by S.E. Aiello and A. Mays. Whitehouse Station, NJ: Merck and Co., 1998, pp. 1019-20.

“Disease Information.” 1 September 2000 Vol. 13, no. 34. *Office International des Epizooties* 28 Aug. 2001 <http://www.oie.int/eng/info/hebdo/AIS_29.HTM#Sec0>.

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